

S
Z

TITLE: WHEEL RETRACTABLE MECHANISM FOR ROLLER SKATE

BACKGROUND OF THE INVENTION

(a) Field of the Invention

5 The present invention is related to an improved mechanism to retract wheels of a roller skate, and more particularly, to one used to control for exposing or concealing the wheels of a roller skate out of or in the boot sole to eliminate the flaws of being vulnerable to attract accumulation of dirt, and
10 awkward to retract the wheels.

(b) Description of the Prior Art:

As illustrated in Fig. 1 of the accompanying drawings for a basic structure of a roller skate generally available in the market, wherein, two or more than two wheels (20) are provided
15 to a sole of a boot (10) to balance forces applied to the sole of the foot for a user to skate along by the boot. Whereas the wheels (20) must be exposed out of the sole of the boot to contact the ground for the user to skate along, the exposed wheels (20) make it difficult to have a normal walk if so desired
20 by the user. Accordingly, a retractable mechanism is provided to combine the wheels (20) with the boot (10) to allow the user to expose or retract the wheels depending on skating or walking with the boots as desired by the user.

Also referring to Fig. 1 for the retractable mechanism of the prior art, a fixture (30) is provided in an accommodation chamber (11) of the boot (10) for the wheels (20) and a folding plate (31) is pivoted to the fixture (30) at where close to the sole of the boot with the wheels (20) pivoted to one end of the folding plate (31). Accordingly, the wheels (20) is
30 folded out of the sole of the boot (10) or folded in and concealed

inside the accommodation chamber (11) of the boot (10) by adjusting the folding angle defined by the folding plate (31) and the fixture (30) to achieve the purpose of concealing the wheels (10) into the boot (10).

5 However, when the wheels (20) are concealed in the boot (10), the opening of the accommodation chamber (11) at the sole of the boot (10) is in open status to easily attract the accumulation of dirt and/or paper threads. Leaving alone the negative impacts upon the hygiene and appearance of the boot
10 (10), the accumulation of dirt and/or paper threads could cause the wheels to get stuck. Furthermore, it is difficult to control the folding in or out of the wheels (20) and the user may get hurt while releasing the wheels (20), one takes to insert fingers into the accommodation chamber (11) to poke the wheels (20)
15 and to erect the folding plate (31).

SUMMARY OF THE INVENTION

The primary purpose of the present invention is to provide a retractable mechanism for a roller skate comprised of multiple wheels with each wheel pivoted to a dedicated bracket and then connected to a casing fixed at a sole of the boot by means of the bracket. The bracket is coupled to the casing by means of a slide track; and a retainer is used to secure both of the bracket and casing in their respectively locations; whereby, the bracket is fully pulled out from the casing by releasing
20 the retainer from the bracket for the bracket to face with its base plate or for the wheels to face towards the sole of the boot before pushing the bracket into the casing to be held in position by the retainer so to secure the bracket in the casing
25 to either conceal or expose the wheels depending on the status
30 of use.

Another purpose of the present invention is to provide a retractable mechanism for a roller skate. Wherein, a base plate is provided on the top of the bracket to slide into the opening of the casing. The base plate is made in a pattern matching that of the sole of the boot so that when the bracket is inserted into the sole of the boot, the base plate of the bracket prevents dirt from entering into the casing and constitute an integral configuration of the sole of the boot to improve the aesthetic appearance for the sole of the boot in general.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic view showing a basic structure of a roller skate of the prior art provided with a wheel retractable mechanism.

Fig. 2 is a perspective view of a preferred embodiment of the present invention.

Fig. 3 is an exploded view showing a wheel retractable mechanism of the preferred embodiment of the present invention.

Fig. 4 is a schematic view showing that a bracket is in the status of having its base plate to face in the direction of a sole of a boot of the preferred embodiment of the present invention.

Fig. 5 is a schematic view showing that a bracket is in the status of having wheel set to face in the direction of a sole of a boot of the preferred embodiment of the present invention.

Fig. 6 is a schematic view showing a structure at the bottom of the boot of the preferred embodiment of the present invention.

Fig. 7 is a schematic view showing the structural relation among a retainer, a retaining part and a press button of the

preferred embodiment of the present invention.

Fig. 8 is a schematic view showing that the wheel set is retracted in the preferred embodiment of the present invention.

Fig. 9 is a schematic view showing that the bracket is
5 pulled out of the casing in the preferred embodiment of the present invention.

Fig. 10 is a schematic view showing that the wheel set is exposed out of the sole of the boot in the preferred embodiment of the present invention.

10 Fig. 11 is a schematic view showing that the base plate of the bracket is inserted into an opening of the casing in the preferred embodiment of the present invention.

Fig. 12 is a sectional view showing that the base plate of the bracket is inserted into an opening of the casing in
15 the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Fig. 2, multiple wheels (20) are provided to a sole of a boot (10) to balance forces applied to a sole of one's foot for a user to skate along by taking advantage
20 of the boot (10). Each wheel set (20) as illustrated in Figs. 2 and 3 is essentially comprised of a casing (40), a bracket (50), two slide tracks (6), a retainer (70), and a press button (80). The casing (40) fixed in an accommodation chamber (11) provided in the sole of the boot (10) for the wheel set (20) relates to the primary mechanical structure for the boot (10) to couple to the retractable mechanism of the present invention.
25 An opening (41) to permit retraction by the wheel set (20) is provided to the casing (40) at where in relation to the sole of the boot (10).

30 The bracket (50) related to a structure to be inserted

into the casing (40) is provided with a base plate (51) to be inserted into the opening (41) of the casing (40). Both sides of the base plate are each provided with a side panel (52) for the insertion of an axle of the wheel set (20). A pivot (53) is each provided externally to both side panels (52) and a positioning part (54) is each provided on both sides of the pivot (53). Multiple positioning parts (54) may be provided respectively on both sides of the pivot (53) to regulate the location of the bracket (50) in the casing (40).

Two slide tracks (60) penetrating through an inner wall where the interior of the casing (10) meets the pivots (53) of the bracket (50) respectively have their bottoms provided each with a limiting groove (61). Each limiting groove (61) is pivoted to the pivot (53) of the bracket (50) to constitute a coupling between the bracket (50) and the casing (40) while allowing the bracket (50) to fully extend out of the casing on the slide track (60) so to release the bracket (50) from the casing (40) for exercising the shifting between status of having the base plate (51) or the wheel set (20) to face in the direction of the sole of the boot (10) as illustrated in Fig. 4 or Fig. 5. A stop (62) is provided each on the top of both slide tracks (6) to prevent the slide tracks from sliding out of the casing (40).

The retainer (70) provided on the wall of the casing (40) in relation to the positioning part (54) of the bracket (50) is sued to restrict mutually with the positioning part (54) of the bracket (50) for fixing the relative locations between the bracket (50) and the casing (40).

A press button (80) coupled to the retainer (70) as illustrated in Figs. 6 and 7, is comprised of a linkage (81)

and the retainer (70). The retainer (70) relates to a pin and the positioning part (54) relates to a positioning hole while a coil (90) is provided at the retainer (70) to push the retainer (70) against the positioning part (54) of the bracket (50) thus 5 to make sure that both of the retainer (70) and the positioning part are mutually restricted to each other. Once the push button (80) is pressed, the linkage (81) is driven for the bracket (50) to be released from the restriction by the retainer (70).

In operation, the push button (80) is pressed to release 10 the bracket (50) from the retainer (70) as illustrated in Figs. 8 and 9, the bracket (50) is then fully pulled out of the casing (40) to facilitate shifting the bracket (50) to either have its base plate (51) or the wheel set (20) facing in the direction of the sole of the boot (10). As illustrated in Fig. 10 for 15 the case that the bracket (10) is shifted to have the wheel set (20) facing in the direction of the sole of the boot (10), the bracket (50) is pushed into the casing (40) for both of the retainer (70) and the positioning part (54) of the bracket (50) to be restricted to each other as illustrated in Fig. 7. 20 Finally, both of the bracket (50) and the casing (40) are fixed to each other to maintain the wheel set (20) being concealed or exposed depending on the status of use.

The present invention allows the bracket (50) to be easily pulled out of the casing (40) by simply pressing the push button 25 (80) for an active shift between having the bracket (50) to face in the direction of the sole of the boot (10) with the base plate (51) or the wheel set (20). Alternatively, as illustrated in Figs. 3 and 4, the coil (90) is provided between the slide tracks (60) and the casing (40) to eject the casing 30 (40) for easier control of the retraction of the wheel set (20)

once the bracket (50) is released from the retainer (50) by pressing the push button (80).

When the wheel set (20) is concealed as illustrated in Figs. 11 and 12, the base plate (51) of the bracket (50) is inserted to the opening (401) of the casing (40) to prevent dirt from entering into the casing (40). Furthermore, the base plate (51) is made in a pattern to match that of the sole of the boot (10) for the sole of the boot (10) to form an integral configuration, thus to improve the aesthetic appearance of the boot (10) in general.

As described, a wheel retractable mechanism for a roller skate of the present invention offers a better feasible wheel retractable mechanism to effectively solve the problems including being vulnerable to accumulate dirt and difficult to control the retraction of the wheel found with the prior art. Therefore, this application is duly filed. However it should be noted that any and all the preferred embodiments and accompanying drawings disclosed herein do not in any way limit the present invention; therefore, any structure, means and/or characteristics that are identical with or similar to those of the prevent invention shall be deemed as falling within the purposes and claims of the present invention.